

NEW ABSTRACT

An illumination system includes a radiation source and a fluorescent material including at least one phosphor capable of absorbing a part of light emitted by the radiation source and emitting light of wavelength different from that of the absorbed light. The phosphor includes a yellow red-emitting cerium-activated carbido-nitridosilicate of general formula $(RE_{1-z})_{2-a}EA_a$ $Si_4N_{6+a}C_{1-a}:Ce_z$ where $0 \leq a < 1$, $0 < z \leq 0.2$, EA is at least one earth alkaline metal selected from the group of calcium, strontium and barium, and RE is a least one rare earth metal chosen from the group of yttrium, gadolinium and lutetium. The phosphor may include a red to yellow-emitting cerium-activated carbido-nitridosilicate of general formula $(RE_{1-z})_{2-a}EA_a$ $Si_4N_{6+a}C_{1-a}:Ce_z$ where $0 \leq a < 1$, $0 < z \leq 0.2$, EA is at least one earth alkaline metal selected from the group of calcium, strontium and barium, and RE is a least one rare earth metal chosen from the group of yttrium, gadolinium and lutetium.